RURAL CONCEPTS

To avoid challenge, methodologies for classifying rural and non-rural areas for subsistence management cannot diverge too far from common meanings of the term "rural." Evaluation criteria should be firmly grounded in credible, though rigorous, construction of terms consistent with common meanings and the scientific literature.

There appear to be three common meanings of "rural," according to the *American Heritage Dictionary of the English Language, 4th Edition* (AHDEL 2000: 1525):

1. "rural" means of, relating to, or characteristic of *the country*, including *open space* and relatively *low human population-to-land densities*;

2. "rural" means of, or relating to, *farming, agriculture, or other extensive land uses*, which are *ways of making a living in the country*; and,

3. "rural" means of, or relating to, the *people who live in the country*, including distinctive patterns of knowledge, belief, experience, skills, value orientations, and customs connected to country living *(distinctive cultural patterns associated with country living*).

These three dimensions are represented in a definition of "rural" offered by the recently published, *Dictionary of Human Geography*:

> *Rural.* Areas which are dominated (either currently or recently) by extensive land uses such as agriculture or forestry, or by large open spaces of undeveloped land; which contain small, lower-order settlements demonstrating a strong relationship between buildings and surrounding extensive landscape, and which are perceived as rural by most residents; and which are thought to engender a way of life characterized by a cohesive identity based on respect for the environment, and behavioral qualities of living as part of an extensive landscape. In practice, rural areas vary considerably, from those which may still be defined functionally (by land use and geographical location) to those closer to urban centers where 'rural' is more of a socially and culturally constructed and therefore contested category. (Johnson 2000: 718, by P. Cloke)

The above definition from human geography is consistent with common meanings, including as dimensions "large open spaces of undeveloped land" (*the country*), "extensive land uses" (*ways of making a living in the country*), and "way of life," "identity," and "behavioral qualities of living as part of an extensive landscape" (*distinctive cultural patterns of people living in the country*).

Under these general concepts, a population regularly supported by extensive land uses (such as country food production, commercial fishing, forestry, and so forth) within a sparsely-populated, open country is "rural." That is, *extensive land use* and *sparsely-populated, open country* are each a primary mark of being rural. A population with both

features appears doubly qualified. Conversely, under these general concepts, a population not supported by extensive land uses within a relatively densely-populated area is "non-rural," failing two of the primary features. Populations displaying a mix of features are of less certain classification and might need additional assessment.

In addition, under the general concepts, one would expect a rural population to display certain distinctive patterns of knowledge, belief, experience, skills, value orientations, and customs connected to country living. Through regular daily interaction with the open land and its ways of living, rural people come to be distinguishable from city people, as expressed by the commonly-held contrast of "rustic" with "urbane" (AHDEL 2000: 1526, 1892).

The following analysis will treat the first two general characteristics (*extensive land uses* and *sparsely-populated, open country*) as *primary* concepts for identifying rural populations in Alaska. They are each central to the most common meanings of "rural," and they each have measures generally available in demographic and other scientific databases. As is shown below, most Alaska populations can be identified as "rural" or "urban" using the two primary concepts. Measures related to the third general characteristic (*distinctive cultural patterns connected to country living*) are treated as *ancillary* evidence in support of classifications made with the two *primary* concepts. Information is not consistently available for ancillary factors. However, ancillary concepts may be useful as additional information for assessing particular cases, especially those not clearly identified with primary factors. In the following four subsections, information on each of the three rural dimensions is discussed, based on literature reviews and contributions of Alaska focus groups. The development of methodologies for rural determinations in Alaska follow in subsequent sections.

Rural as "The Country"

Commonly, "rural" means of, relating to, or characteristic of *the country*, as opposed to *the city* (AHDEC 2000: 1525, 1st meaning). This is the word's core sense. The Latin root, *rur-*, means "open land" or "country," and it descends from a very old Indo-European root, *reuə*, meaning the verb, "to open" and the noun, "space" (hence, "open space") (AHDEL 2000: 2045). The "country" in this sense means an area or expanse outside cities and towns, with relatively lower human population to land densities (AHDEL 2000: 418, 4th meaning). In its common sense, "city" means a center of population, commerce, and culture, or a town of significant size and importance (AHDEL 2000: 339, 1st meaning). So the basic contrast is between *the country* and *the city*. "Urban" is a common contrast term for rural, because "urban" means of, relating to, or located in a city, from the Latin stem *urb-*, city (AHDEL 2000: 1892).

The scientific literature on rural and urban areas covers historic processes of "urbanization," urban expansion (including formation of "suburbs," "metropolitan" areas, and "rural-urban fringe" areas), and evolving relationships between rural and urban populations. Historically, cities developed as ceremonial centers, administrative centers

for public works projects (particularly large-scale irrigation systems for agriculture), and centers of politico-military power (Adams 1966; Mumford 1961). With increasing agricultural production and concentration of economic surpluses, cities became centers of trade and redistribution networks as well as centers of administration, craft specialization, finance, and culture. With industrialization and capitalism, cities have become primary centers of production and consumption of manufactured goods and services, with the urban population selling labor to capital (Casells 1977; Johnson 2000: 871).

As a consequence of industrialization, rural-to-urban demographic transitions have accompanied national economic development at a global scale (Preston 1982; Schapiro 1986). Standard measures of urbanization are now used to track changes in national populations, including "urban percentage," "urban-rural ratio," and "mean city population size" (Arriaga 1982). In developing countries, rural populations typically exceed urban populations, while in developed countries, urban populations typically exceed rural populations (for example, while China is 70 percent rural, Europe is 70 percent urban) (Korcelli 1982; China Statistical Yearbook 1998: 105; United Nations 1997). Urbanization initially occurs through net transfers of rural populations to urban areas. Most urban growth results from natural increase of city residents (excess births over deaths), with rural-urban migration and reclassification of areas from "rural" to "urban" comprising secondary components. In developed countries with urban majorities, urban areas expand and contract primarily through transfers of city residents between urbanized areas (Preston 1982; Korcelli 1982; Wardwell and Brown 1980; Wardwell and Copp 1997). The urbanized areas of Alaska primarily have grown through in-migration from other urban areas outside of Alaska (Williams 2000; Kruse and Foster 1986). In 1990, the majority of Alaska's rural residents were born in the state (about 75 percent), in contrast with 27 percent for Anchorage, 26 percent for Fairbanks, about 32 percent for the Matanuska-Susitna Borough, Kenai Peninsula Borough, and Juneau, and 34 percent for Alaska as a whole (Williams 2000:19).

"Rural sociology" developed principally within the social and political turmoil associated with the American Industrial Revolution (Summers 2000: 1686; Hay and Basran 1992). The discipline documented the revolutionary restructuring of economic, social, and political systems as American industry transformed. Sociological concepts and theories about "rural society," "modernization," "the rural-urban continuum," and other social phenomena developed within, and were colored by, evolving political power structures and economic-property relationships. Rural-urban concepts were constructed in large part to mediate the turmoil between country and city populations. Over time, political power and economic advantage became concentrated in urban areas, and urban-based interests typically interpreted the solution to "rural problems" as requiring the "modernization" and "technological transformation" of rural areas. By contrast, small-holder farmers, indigenous cultural groups, and other rural populations frequently interpreted the industrial revolution in terms of economic expropriation and destruction of traditional societies and rural agrarian systems by urban power bases (Summers 2000). Administrative approaches toward urban and rural areas were commonly constructed within policy debates over allocation of key public resources. Professional "managers" and "gatekeepers" in the state apparatus played important roles in constructing and

applying rules of access to public resources (Pahl 1975; Johnson 2000: 878; Cain et al 1990). In Alaska, similar historic processes have played out. During the most recent century, substantial political and public tensions have emerged between urban and rural populations over issues including land ownership and control, natural resource development, fish and wildlife allocation, and public funds expenditures (Berger 1985).

The demarcation of "rural" and "urban" populations vary considerably among and within government programs (Arriaga 1982). Larson (1968: 582) states, "The most general current practice is to use two demographic variables – absolute size and density of settlement – in defining 'rural'." However, he states, "although there is broad general consensus that the term 'rural' refers empirically to populations living in areas of low density and to small settlements, there are wide variations in the cutting point used operationally to distinguish rural from urban…. In most countries the dividing line between rural and urban is set at population aggregates of somewhere between 1,000 and 5,000 inhabitants." In reviewing the literature, we found rural/non-rural thresholds as high as 50,000 people used by government programs in the United States. A selection of rural standards used by government entities illustrates some of this variability.

> *U.S. Census Definition*. In 2000, the U.S. census defined "urban" as incorporated places or census designated places of 2,500 or more persons (here and elsewhere, U.S. census information derives from materials at www.census.gov). United States territory and populations not classified as "urban" constituted "rural." In 1990, 24.8 percent of the U.S. population was rural under this standard.
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> *Statistics Canada Definition.* In 2000 in Canada, Statistics Canada defined "urban" as areas with minimum population concentrations of 1,000 persons and a population density of at least 400 persons per sq km (about 1,040 persons per sq mi) (Statistics Canada 1996). All territory outside urban areas was considered rural.
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> *U.S. Office of Management and Budget Nonmetropolitan Areas.* In the U.S. since 1990, whole counties or county clusters have been considered urban or rural for certain federal programs based on whether they comprised a "metropolitan area" ("urban") or "nonmetropolitan area" ("rural") as defined by the U.S. Office of Management and Budget (U.S. Department of Agriculture 2001). A *metropolitan area* contained (1) core counties with one or more central cities of at least 50,000 residents or with a Census Bureau-defined urbanized area and a total area population of 100,000 or more and (2) fringe counties that were economically tied to the core counties. *Nonmetropolitan areas* were outside the boundaries of metropolitan areas and had no cities with as many as 50,000 residents. In 1990, 22.5 percent of the U.S. population lived in nonmetropolitan areas under this standard. Except for the municipality of Anchorage, all areas in Alaska were classified as "nonmetropolitan" and qualified as "rural" for most federal health programs under this standard (Ricketts et al 1998: 4).

U.S. Administration on Aging. Under the 1992 Amendments to the Older American Act, the U.S. Administration on Aging has defined "urban area" as (1) urbanized areas (a central place and its adjacent densely settled territories with a combined minimum population of 50,000) and (2) incorporated places or census designated places with 20,000 or more inhabitants. A "rural area" was an area that was not urban. The administration operationalized the definition using urbanized areas as defined by the Census Bureau and ZIP code areas (Ricketts et al 1998: 7).

U.S. Department of Housing and Urban Development. For certain housing programs, "rural" means any open country, or any place, town, village, or city which is not part of or associated with an urban area and which (1) has a population not in excess of 2,500 inhabitants, or (2) has a population between 2,500 to 10,000 if it is rural in character, or (3) has a population between 10,000 and 20,000 and is not contained within a standard metropolitan statistical area and has a serious lack of mortgage credit for lower and moderate-income families (42 U.S. Code, 8A, III Section 1490; Ricketts et al 1998: 11). In this definition, mortgage credit and other factors are used in addition to population size and density in classifying areas for HUD programs.

U.S. Department of Health and Human Services Frontier Area Concept. For the development of community health center service areas, "frontier" areas have been defined as areas with low density populations (6 or fewer persons per square mile), with at least 500 residents within a 25-mile radius of a health service delivery site or within a logical trade area, and with the distance to the next level of care more than 45 miles and/or 60 minutes (Ricketts 1998: 10-11).

U.S. Department of Agriculture Urban Influence Code and Rural-Urban Continuum Code. Adjusting the metropolitan and nonmetropolitan classification system of the U.S. Office of Management and Budget, the USDA categorizes areas into nine types, based on the population size of cities in nonmetropolitan areas (<2,500; 2,500-9,999; 10,000 or more), the population of metropolitan areas (<1 million; >1 million), and the location of nonmetropolitan areas ("adjacent" or "not adjacent" to a metropolitan area). In these two systems, adjacent areas are identified by at least two percent of the employed labor force commuting for work (Ricketts et al 1998: 8).

The complexity of some of the above classification systems results in part from the characteristics of the so-called "rural-urban fringe," zones of transition between the continuously built-up urban and suburban areas of the central city and the rural hinterland (Prior 1968; Errington 1994; Bryant et al 1982; Brown et al 1993). The rural-urban fringe commonly displays a changing mosaic of land uses and sociodemographic characteristics (Johnson 2000: 722). With improved transportation networks and commuting efficiencies, fringe areas increasingly serve as places of residence for persons with urban-centered sources of livelihood while including rural-oriented populations (Champion 1989; Larson 1968: 581; Nagata 1971). Commonly, land planning issues

involving the fringe include placement of large-scale urban facilities (such as airports and sewage works), "fringe" agriculture, land banks for later development, green belts, and commuting systems (Johnson 2000: 722). In addition, there has been a trend in some states toward the extension of city boundaries to include territory that is essentially rural in character. Rural-like populations who might otherwise qualify for federal rural programs find themselves within the boundaries of municipalities that are nominally "urban."

To provide a better separation of rural and urban populations in the vicinity of large places, the U.S. census recognizes "urbanized areas." An urbanized area is one or more places ("central place") and the adjacent densely settled surrounding territory ("urban fringe") that together have a minimum of 50,000 persons. The geographic core must have a population density of at least 1,000 people per square mile, and adjacent blocks must have at least 500 people per square mile. The U.S. census also uses the concept of an "extended place" (previously called "extended city"), defined as an incorporated place or census designated place that is partially within and partially outside of an urbanized area or urban cluster. The urban portion of an extended place is classified with the urbanized area, while the rural portion is classified as "other rural." These classification tools enable the U.S. Census to split up incorporated places (and census designated places), in order to treat a portion as "urban" and a portion as "rural," based on sprawl and other density characteristics.

Practically, classification of areas based on factors such as population size and density involve decisions about aggregation and disaggregation of populations and territories for which census information has been specifically collected. The U.S. Census utilizes a hierarchy of spatial units for collecting and reporting information, including the following: "census block group" (generally between 600 to 3,000 people with an optimum size of 1,500 persons), "census tract" (generally between 1,500 and 8,000 people with an optimum size of 4,000 people), "zip code tabulation areas" (ZCTAs) (approximate delivery area for a U.S. Postal Service five-digit or three-digit zip code), "incorporated places/census designated places" (legally-constituted cities or statistical areas without legal status, of any population size), "urbanized area" (a densely-settled territory that contains 50,000 or more people), and "metropolitan area" (a large population nucleus with at least 50,000 people and adjacent communities with a high degree of economic and social integration). Census block groups and census tracts commonly are delineated by *location participants* as part of the U.S. Census Bureau's Participant Statistical Area Program. These types of spatial units are used to aggregate and disaggregate information for calculating population size, density, commuting patterns, and other measures used in rural definitions. This topic is elaborated in later sections of this report.

Rural as "Ways of Making a Living in the Country"

In its second common meaning, "rural" means of, or relating to *farming, agriculture, or other extensive land uses* (AHDEL 2000: 1525). In this sense, rural refers to ways of making a living in the country (as contrasted with ways of making a living in cities). Ways of making a living differ considerably in the country, depending on the culture, economy, ecology, and history of a place and its people. In addition to "agriculture," the literature identifies at least three additional general patterns that characterize country living -- hunting-gathering-fishing (foraging), pastoral herding, and horticulture (subsistence farming) (Castell 1972; Howell 1986; Langdon 1986; Meyers 1988; Nimkoff and Middleton 1960; Shaw 1988).

As stated by Larson (1968: 581), "the production of food and other raw materials is a basic function of rural societies; indeed, in modern society the survival of the urban sector is dependent upon the effective conduct of this function." While food production is commonly central to rural economies, farmers usually are intermingled with country residents engaged in non-farm occupations, and members of a farming household commonly hold non-farm occupations.

In developed countries, the percentages of rural residents engaged in farming are a relatively small minority of the rural population (DeAre et al 1989; Falk et al 1988; Frederick 1988). For instance, in Canada, only 12.9 percent of the rural population was categorized as "rural farm population" in 1996, with provincial percentages ranging from a low of 0.6 percent (Newfoundland) to a high of 38.7 percent (Saskatchewan) (Statistics Canada 2001). This cautions that, while "farming" and other "extensive land uses" are common marks of "rural," the majority of workers in rural areas in developed countries are likely not to be food producers or to live on farms. The percentages of farmers in urban areas are even smaller. In Canada's urban areas, only 0.14 percent of Canada's urban population was classified as "urban farm population" in 1996 (Statistics Canada 2001).

The variety of economic systems underlying rural areas is illustrated by economic typologies of the U.S. Department of Agriculture. The USDA classifies nonmetropolitan counties (which are treated as "rural" under some federal programs) into six non-overlapping economic types according to the primary economic activity or themes of special policy significance, including farming-dependent, mining-dependent, manufacturing-dependent, government-dependent, services-dependent, and nonspecialized counties (U.S. Department of Agriculture 2001). Most Alaska areas are classified as "government-dependent," with local economies specialized in federal, state, and local government activities. Counties also are classified into five overlapping policy types: retirement-destination counties, federal lands counties, commuting counties, persistent poverty counties, and transfers-dependent counties.

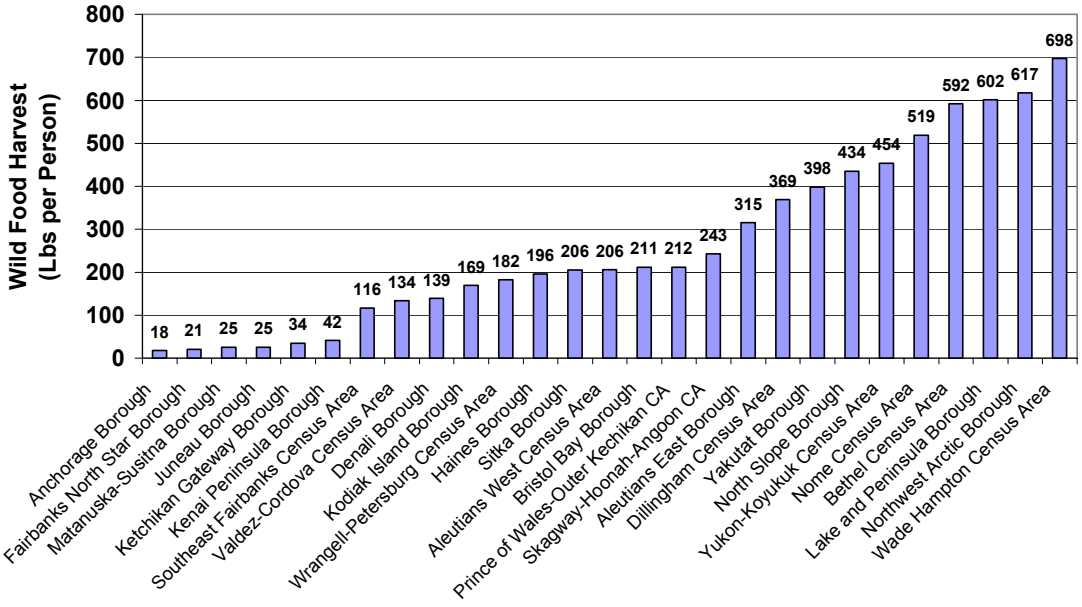
Types of extensive land uses historically found in rural Alaska include commercial fishing, commercial whaling, fur harvesting (sea otters, fur seals, furbearer trapping, and fox/mink farming), reindeer herding, commercial logging, hard-rock mining (such as

gold, silver, and zinc), oil and gas extraction, agriculture (large-scale farms have been primarily in the Matanuska-Susitna and Delta areas), and tourism. Some extensive land uses have been associated with boom-and-bust settlement cycles, such as Nome. Others have spurred the development of more permanent towns and cities, such as Juneau and Fairbanks (gold mining) and Anchorage, Kenai, and Valdez (support services for petroleum development and export) (Wolfe and Ellanna 1982; Williams 2000: 14).

Information on economic activity by community is available from the U.S. Census and the Alaska Department of Labor. Economic activity is summarized in terms of standard industrial codes (such as Services, Trades, and Finances; Utilities, Transportation, Construction, Communication; State and Local Government; and so forth). Employment also can be summarized in a similar fashion. Associations of employment/industrial categories with settlement size in Alaska were examined by Bradford Tuck as part of this project. Some industrial categories appear to be related to population size, although relationships appear complex. Information on commercial fishing activities is compiled by the Alaska Limited Entry Commission and the Alaska Department of Fish and Game. These records provide measures of commercial fishing participation and commercial fish harvests by residents of Alaska communities.

In Alaska, "ways of making a living" in the country commonly include non-commercial fishing and hunting for local consumption (Wolfe and Walker 1987). Some areas are supported by traditional economic systems which have been called "subsistence-based socioeconomic systems," characterized by factors such as substantial wild food production levels, noncommercial food distribution systems, diversity of wild foods, moderate to high household participation rates in food production, community-wide seasonal cycle of harvest activities, traditional land use areas, among other factors (Wolfe et al 1984). Harvest levels vary substantially by region, as illustrated by Fig. 1 (Wolfe 2001; see also Wolfe and Walker 1987 for a discussion of factors related to harvest levels). Alaska's large, populated census areas have relatively lower per capita harvests of wild foods – Anchorage (18 lbs), Fairbanks North Star Borough (21 lbs), Matanuska-Susitna Borough (25 lbs), Juneau Borough (25 lbs), Ketchikan Gateway Borough (34 lbs), and Kenai Peninsula Borough (42 lbs) (Fig. 1). Harvests in other census areas range from 116 lbs per capita (Southeast Fairbanks Census Area) to 698 lbs per capita (Wade Hampton Census Area). The nutritional values of wild food harvests are substantial for most census areas. In 21 of 27 census areas, wild food harvests contain 75 percent or more of the Recommended Dietary Allowance (RDA) of protein for the population (Fig. 2). In the five census areas with the lowest harvests, wild foods contain less than 25 percent of the RDA of protein (Fig. 2). A growing ethnographic literature has documented these harvest and use patterns for communities throughout the state, as is summarized in the subsequent section, *Rural Definitions and Subsistence Research in Alaska.*

Fig. 1. Wild Food Harvests (Lbs Per Person per Year) by Residents of Alaska Census Areas



The Map Catalog Database within the Alaska Department of Fish and Game contains maps of geographic areas used for fishing and hunting by residents of Alaska communities, collected using methodologies pioneered in Canada (cf., Caulfield and Pedersen 1981; Caulfield 1983). While many maps have been digitized, most appear as hard-copy maps in reports of the Technical Paper Series of the Division of Subsistence (*www.state.ak.us/local/akpages/FISH.GAME/subsist/subhome.htm*). The maps provide a main information base for analyzing extensive land use patterns in rural Alaska areas.

Fig. 2. Nutritional Values of Annual Wild Food Harvests to Census Area Populations in Alaska

Rank	Alaska Census Area	Population (2000)	Annual Wild Food Harvest (Lbs Per Person)	Annual Wild Food Harvest (Lbs Per Census Area)	PROTEIN Percentage of Recommended Dietary Allowance of Protein (49 g/day)
27	Anchorage Borough	260,283	18	4,581,730	11%
26	Fairbanks North Star Borough	82,840	21	1,717,465	13%
25	Matanuska-Susitna Borough	59,322	25	1,495,478	16%
24	Juneau Borough	30,711	25	776,573	16%
23	Ketchikan Gateway Borough	14,070	34	483,539	22%
22	Kenai Peninsula Borough	49,691	42	2,058,598	27%
21	Southeast Fairbanks Census Area	6,174	116	718,402	75%
20	Valdez-Cordova Census Area	10,195	134	1,364,734	86%
19	Denali Borough	1,893	139	263,926	90%
18	Kodiak Island Borough	13,913	169	2,354,674	109%
17	Wrangell-Petersburg Census Area	6,684	182	1,219,507	118%
16	Haines Borough	2392	196	467,875	126%
15	Sitka Borough	8,835	206	1,816,476	133%
14	Aleutians West Census Area	5,465	206	1,126,420	133%
13	Bristol Bay Borough	1,258	211	265,849	137%
12	Prince of Wales-Outer Kechikan CA	6,146	212	1,304,287	137%
11	Skagway-Hoonah-Angoon CA	3,436	243	834,802	157%
10	Aleutians East Borough	2,697	315	850,155	204%
9	Dillingham Census Area	4,922	369	1,816,296	238%
8	Yakutat Borough	808	398	321,422	257%
7	North Slope Borough	7,385	434	3,208,253	281%
6	Yukon-Koyukuk Census Area	6,541	454	2,967,320	293%
5	Nome Census Area	9,196	519	4,769,929	335%
4	Bethel Census Area	16,016	592	9,480,402	382%
3	Lake and Peninsula Borough	1,823	602	1,097,190	389%
2	Northwest Arctic Borough	7,208	617	4,447,292	399%
1	Wade Hampton Census Area	7,028	698	4,904,458	451%

Source: Robert J. Wolfe and Associates, Subsistence Profiles of Alaska Census Areas, 2001 (Revised 7/15/02)

A *central-based use area* pattern is a common land use pattern in rural Alaska. In this pattern, residents of a central settlement regularly use surrounding commons for country food production. In regions off the Alaska road system, settlements are typically compact, with residences, services, businesses, schools, and airports occupying a central area. The surrounding commons are relatively open, with low human populations, and containing modest infrastructures such as trail systems, fishing camps, trapping cabins, and so forth. The commons typically comprise mosaics of public and private lands across which range common-property fish stocks and wildlife populations. In addition to federal and state regulations, local usufruct rules guide the access and use of the commons for noncommercial fishing and hunting. Use of fishing eddies, seasonal camps,

trapping lines, berry picking sites, and other harvest areas typically are guided by customary rules. A core use area surrounding a rural settlement generally supports most country food production. However, larger use areas extending beyond the intensively-used core are used more occasionally. Use areas of rural settlements commonly overlap those of other rural settlements at the margins.

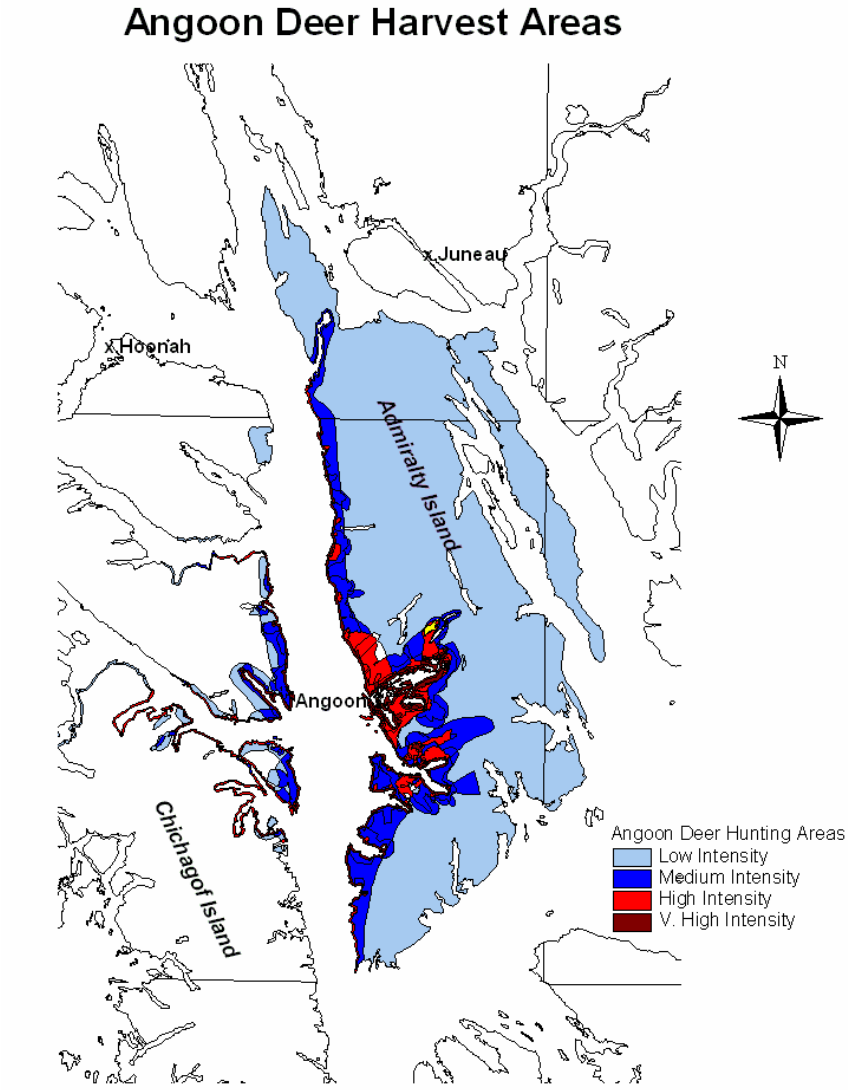


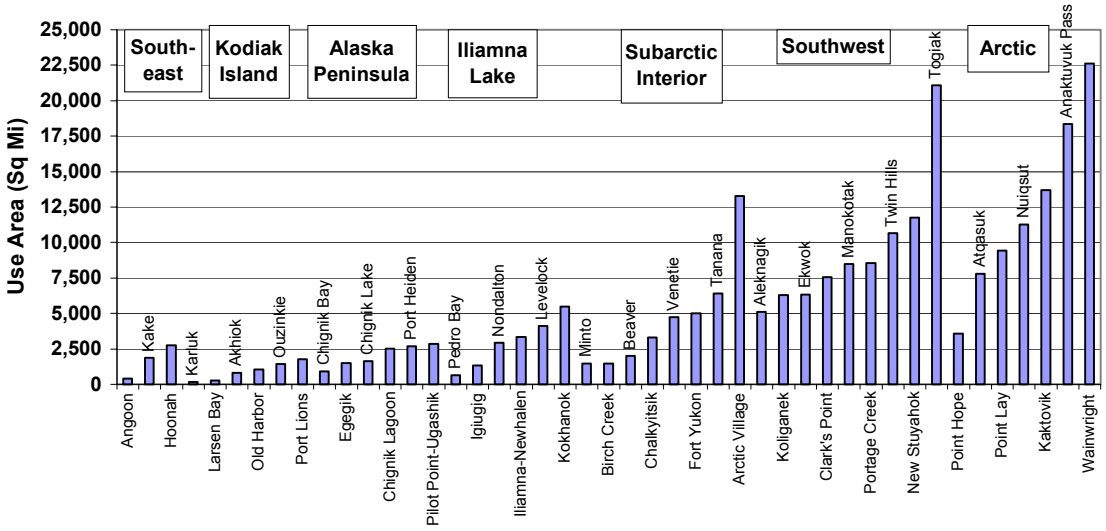
FIG. 3. EXAMPLE OF A CENTRAL-BASED USE AREA

The mapped use area for deer hunting by residents of Angoon illustrates a *central-based use area* pattern (Fig. 3). For Angoon residents, most deer hunting takes place in areas relatively near the settlement and along the coast of eastern Admiralty Island and portions of west Chichagof Island. Other deer hunting areas extend beyond the core use areas.

For Tlingit hunters from Angoon, customary protocols related to traditional clan and family affiliations guide the use of hunting areas. Neighboring areas are commonly used for deer hunting by residents of neighboring settlements, such as Kake, Tenakee Springs, and Hoonah.

"Low density," a primary rural characteristic, is a reflection of such rural land use patterns in Alaska. The central settlement, commonly demarcated by municipal or census designated place boundaries, is compact and densely populated. However, the surrounding commons regularly used for country food production is sparsely-populated, open country, being relatively empty of residences or other built structures. As is discussed in later sections, density measures relevant to Alaska's country food procurement patterns express the ratio of human populations to surrounding commons. Population densities reflecting a community's nearby land base provide more accurate measures of human to land area relationships than densities calculated using municipal or census unit boundaries (cf., Office of Subsistence Management 2001: 15, Table 2).

Fig. 4. Size of Use Areas of Selected Alaska Communities

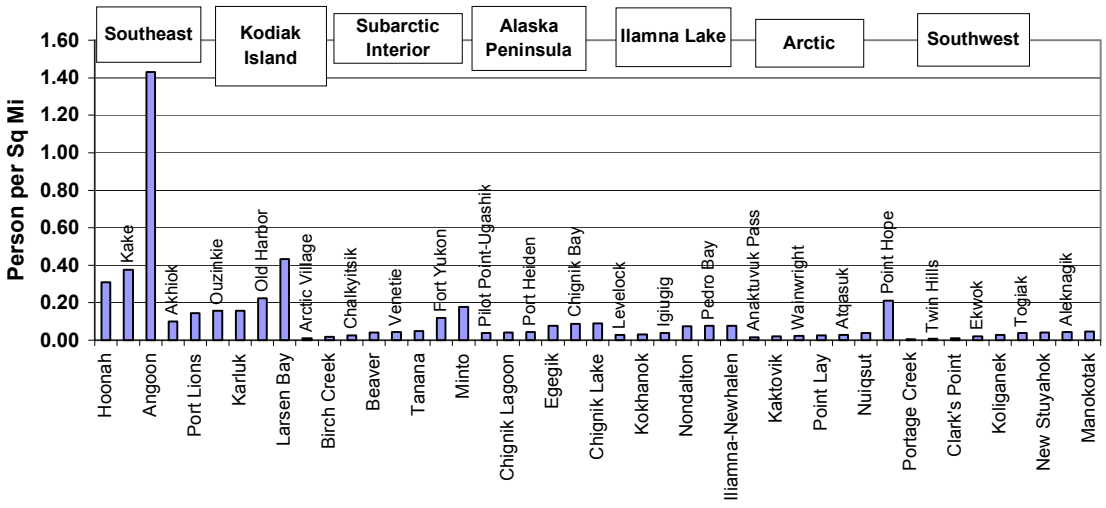


The sizes of use areas (sq miles) of a selection of Alaska settlements are illustrated in Fig. 4, ordered by subregion and size. For this selection of settlements, use areas range in size from about 400 sq mi (Angoon) to 22,609 sq mi (Wainwright). The use areas for subarctic and arctic settlements generally are larger than those of Pacific coast settlements in this sample of cases. Use areas of rural settlements also show substantial variation within a subregion, related to community size, local ecology, and other factors. In later sections, density is measured in reference to a standard area (2,826 sq mi). A standard area of this size falls within the range of use areas shown in Fig. 4, and is considerably smaller than many use areas documented for inland subarctic and coastal arctic communities.

Population densities to total use areas are illustrated in Fig. 5. These are calculated by dividing a settlement's population by the size (sq mi) of its mapped use area, uncorrected

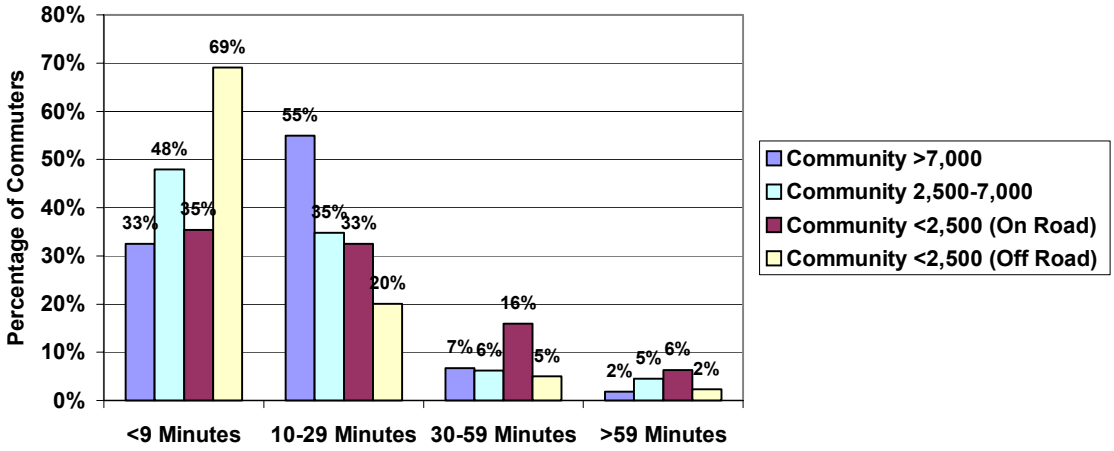
for overlap. For this set of cases, densities range from 1.43 person per sq mi (Angoon) to 0.01 persons per sq mi (Arctic Village). Most densities are below 0.5 persons per sq mi. The highest densities are found in Pacific coastal settlements, while the lowest densities are found in subarctic and arctic settlements.

Fig. 5. Densities of Subsistence Use Areas, Selected Alaska Communities



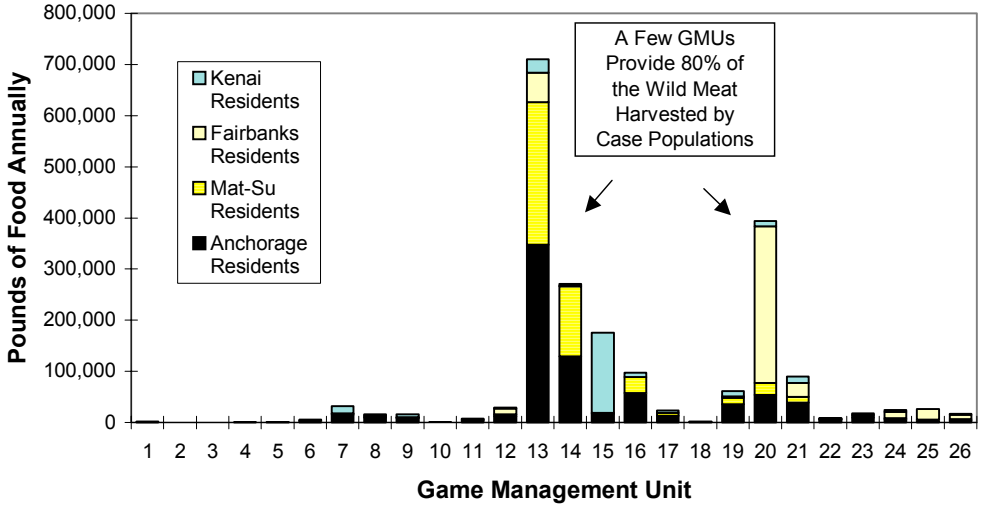
Non-rural populations in Alaska display additional types of settlement and land use patterns. A *metropolitan land use* pattern characterizes Alaska's largest, non-rural settlements, including Anchorage, Fairbanks, and the Palmer-Wasilla area. The populations of these cities are commonly dispersed along road-connected areas, rather than centralized in a single, compact location. The road-connected area is used on a daily basis for employment, commerce, schooling, and so forth. Travel times to work by Alaska residents are shown in Fig. 6, as documented by the 1990 federal census. In Alaska settlements with >7,000 people, 10-29 minutes was the most common daily work commute (55 percent of commuters). The shortest commutes (<10 minutes) were found in small (<2,500 people) off-road communities, indicating their more compact character. The longest commutes were made by some residents of Alaska settlements with <2,500 people along the road system, probably reflecting commutes to jobs located in more-distant population centers.

Fig. 6. Travel Time to Work in Alaska
Percentage of Commuters by Settlement Type
Source: 1990 Federal Census



In a metropolitan land use pattern, non-rural residents make use of surrounding commons, especially for periodic recreational outdoor activities, including boating, hiking, camping, sport fishing, and hunting (Wolfe and Ellanna 1982; Wolfe and Walker 1987). Most hunting and fishing occurs in areas connected by roads to the non-rural settlement, with closer areas receiving greater use than more distant areas.

Fig. 7. Sources of Wild Meat Harvested
by Residents of Selected Alaska Boroughs, 1992-96



This is illustrated in Fig. 7, which shows the Game Management Units (GMUs) where residents of selected boroughs (Anchorage Borough, Fairbanks North Star Borough, Matanuska-Sustina Borough, and Kenai Peninsula Borough) harvested big game (lbs of country food during 1992-96) (Wolfe 2000). For instance, during 1992-96, Anchorage and Mat-Su residents primarily obtained wild meat from neighboring GMU 13 (the Copper Basin), GMU 14 (Anchorage Borough), and GMU 16 (the Matanuska-Susitna Borough). Fairbanks residents primarily obtained wild meat from GMU 20 (the area including and immediately surrounding the Fairbanks North Star Borough) and neighboring GMU 13 (the Copper Basin). Kenai Borough residents primarily harvested big game in GMU 15 (the Kenai Peninsula area). Areas off the road system also were used for hunting by residents of these boroughs, but at much lower levels. Certain Alaska fish stocks and wildlife populations, particularly those accessible by road, are harvested by both rural and non-rural residents. In these cases, the use areas of non-rural residents overlap use areas of rural residents. Managing the competition between rural and non-rural populations for shared areas, fish stocks, and wildlife populations has been a central purpose of federal and state subsistence statutes.

Rural as "Cultural Patterns of Country Peoples"

In its third common meaning, "rural" means of, or relating to, the *people who live in the country* (AHDEL 2000: 1525). In this sense, country dwellers are commonly considered to differ from city dwellers, in terms of knowledge, belief, experience, skills, value orientations, customs, and so forth. This third meaning is directly linked to the first two meanings. It is through their regular interaction with the open land and its ways of living that rural people may become distinguishable from city people. This third common meaning of rural identifies groups of people who are distinctively country in orientation. The contrast of "rustic" (of, relating to, or typical of country life or country people; a rural person; coarse, simple or unsophisticated) and "urbane" (polite, refined, and often elegant in manner) captures a commonly-held distinction between rural and urban people (AHDEL 2000: 1526, 1892).

There is considerable disagreement on the qualitative attributes that distinguish a rural from an urban community or society, such as occupational, social organizational, and cultural characteristics (Larson 1968: 582). Kinship organization of daily living has been advanced as characteristic of a rural way of life. The primary kinship basis of rural life (*Gemeinshaft*) has been contrasted with the impersonal relations of formal contracts underlying urban life (*Gesellschaft*) (Tonnies 1955, originally 1887). Various types of urban-rural continuum have been advanced, including Redfield's (1991) "folk-urban continuum," Wirth's (1938) "urbanism as a way of life," and the "traditional-modern continuum" (Lerner 1958; Larson and Rogers 1964). However, the ethnographic evidence of kinship-based living in many cities and of impersonal, "modern" social forms in many rural areas have seriously undermined these frameworks as simplistic and over-generalized (Pahl 1965; Gans 1962; Johnson and Wang 1997), arguing against the utility of any purely sociological definition of settlement types. Attributes of rural society (such as close personal primary-group relations) also may be found in cities because of the

interchange of people between rural-urban areas, the influence of mass media, and the greater interdependence of rural and urban economic activities (Larson 1968: 582).

Culturally-based systems of ideas, values, and behaviors vary substantially between human groups. Culturally-based traditions regarding use of wildlife ("sport traditions" and "indigenous cultural traditions") have been identified as factors distinguishing certain rural and urban populations in Alaska (Wolfe and Ellanna 1982; Fall et al. 2001: 136). Measurable differences have been documented in knowledge/attitudes about wildlife across subgroups in the United States, Japan, and Germany (Cartmill 1993; Kellert and Westervelt 1983, Kellert 1988, and Kellert 1993). In Kellert's studies, mean value orientations about wildlife statistically varied across respondents grouped by gender, age, education, subcultural affiliations, and rural-urban status. Value orientations (named by Kellert -- aesthetic, dominionistic, ecologistic, humanistic, moralistic, naturalistic, negativistic, scientistic, and utilitarian) were constructed from a cluster and factor analysis of closed-choice questions on self-administered surveys.

Differing systems of beliefs and values can underlie distinctive economic orientations of social groups (Vogt and Albert 1966). For example, based on religious belief systems, certain old order Anabaptist groups (Amish, Old Order Mennonite) practice traditional agricultural systems with pre-industrial technologies. Such traditional rural systems appear to be geographically integrated and sustainable within dominant, technologically-modern agrarian systems in several American states during the 20th century (Hostetler 1980; Kraybill and Bowman 2001). Comprising a social mosaic, *co-resident* Amish and non-Amish populations with distinct ways of living may intermingle and share a single geographic landscape. Ethnographic research outside of Alaska has demonstrated that multiple communities with distinct economic and cultural adaptations may develop and flourish in close geographic proximity (cf., Vogt and Albert 1966; Hostetler 1980; Castile and Kushner 1981; Jorgensen 1971). The Harvard Values Study in Five Cultures provided detailed examples of five distinct adaptive patterns (Navajo, Zuni, Mormon, Spanish American, and Texan homesteader) that coexisted in a shared geographic area. Each rural group used the region in a substantially different fashion (Vogt and Albert 1966). *Co-residency* patterns in Alaska are discussed in later sections, as well as sampling strategies that allow for documenting complex geographic, cultural, and economic patterning of this sort, where they exist in Alaska.

Rural populations commonly display higher fertility rates compared with urban populations, a pattern observed in most countries linked to rural economic patterns (Larson 1968: 586). For example, in an analysis of 25 countries in sub-Sahara Africa, urban fertility rates (4.8 children/woman) were about 30% lower than rural rates (6.6) (Shapiro and Tambashe 2000). The net benefits to parents of having large numbers of children are lower in urban places than in rural places – in rural areas children contribute to food production at relatively early ages. Factors related to higher rural rates included younger unions, higher infant mortality rates, decreased women in schools, and decreased contraceptive use by women 25-34 years of age. Information collected by the Alaska Department of Labor and the U.S. Census Bureau enable the calculation of fertility rates (live births per 1,000 people) and dependency ratios (the proportion of the population

under 18 years divided by the age group between 18 and 65) by Alaska area, which may be used to examine these characteristics as related to rural and non-rural concepts (Williams 2000: 151). In Alaska, the highest birth rates are found in areas with a higher than average Alaska Native population, and some Alaska areas display the highest fertility rates among any U.S. populations (Williams 2000: 64).

Rural Definitions in Subsistence Management

In Alaska, "rural" has been defined specifically for subsistence management under federal and state statutes. Rural findings were initially made by the Alaska Joint Board of Fisheries and Game during the early to middle 1980s. When Alaska state law fell out of compliance with federal requirements after 1989, rural findings were made by the Federal Subsistence Board. In making rural determinations, both the federal and state programs have identified a set of factors for which information is collected and assessed. In general, the factors have been assessed as a whole, using both quantitative and qualitative information. The general standard for the classification of a population appears to be a preponderance of evidence. Findings are subject to reassessment and revision over time. Substantial public comment on rural deliberations has been encouraged through testimony and advisory bodies. Findings from subsistence research in Alaska during the late 20th century (described below) has been considered by the boards in making rural and non-rural determinations (Wolfe and Ellanna 1983; *Alaska Area and Community Socioeconomic Profiles*, Alaska Department of Fish and Game 1986).

In the federal subsistence program, ANILCA Section 803 (16 U.S.C.A. 3113) defines "subsistence uses" as "the customary and traditional uses *by rural Alaska residents* of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken fore personal or family consumption; for barter, or sharing for personal family consumption; and for customary trade" *(emphasis added)*. The rural factors and procedures used by the Federal Subsistence Board are identified in regulation (50 CFR 100.___ and 36 CFR 242.___):

> "§____.15 Rural determination process. (a) The Board shall determine if an area or community in Alaska is rural. In determining whether a specific area of Alaska is rural, the Board shall use the following guidelines:
>
> (1) A community or area with a population of 2,500 or less shall be deemed to be rural unless such a community or area possesses significant characteristics of a non-rural nature, or is considered to be socially and economically a part of an urbanized area.
> (2) Communities or areas with populations above 2,500 but not more than 7,000 will be determined to be rural or non-rural.
> (3) A community with a population of more than 7,000 shall be presumed non-rural, unless such a community or area possesses significant characteristics of a rural nature.

(4) Population data from the most recent census conducted by the United States Bureau of Census as updated by the Alaska Department of Labor shall be utilized in this process.
(5) Community or area characteristics shall be considered in evaluating a community's rural or non-rural status. The characteristics may include, but are not limited to:
   i. Use of fish and wildlife;
   ii. Development and diversity of the economy;
   iii. Community infrastructure;
   iv. Transportation; and
   v. Educational institutions
(6) Communities or areas which are economically, socially, and communally integrated shall be considered in the aggregate.

(b) The Board shall periodically review rural determinations. Rural determinations shall be reviewed on a ten year cycle, commencing with the publication of the year 2000 U.S. census. Rural determinations may be reviewed out-of-cycle in special circumstances. Once the Board makes a determination that a community has changed from rural to non-rural, a waiting period of five years shall be required before the non-rural determination becomes effective."

Current federal determinations are listed at §____.23:

"§_____.23 Rural determinations. (a) The Board has determined all communities and areas to be rural in accordance with §___.15 except the following:

Adak;
Fairbanks North Star Borough;
Homer area – including Homer, Anchor Point, Kachemak City, and Fritz Creek;
Juneau area – including Juneau, West Juneau and Douglas;
Kenai area – including Kenai, Soldotna, Sterling, Nikiski, Salamatof, Kalifornsky, Kasilof, and Clam Gulch;
Ketchikan area – including Ketchikan City, Clover Pass, North Tongass Highway, Ketchikan East, Mountain Pass, Herring Cove, Saxman East, and parts of Pennock Island;
Municipality of Anchorage;
Seward area – including Seward and Moose Pass;
Valdez; and
Wasilla area – including Palmer, Wasilla, Sutton, Big Lake, Houston, and Bodenberg Butte.

You may obtain maps delineating the boundaries of non-rural areas from the U.S. Fish and Wildlife Service.
(b) [Reserved]"

For the State program of fish and wildlife management, Alaska state statutes (AS 16.05.940(27)) define "rural area" as "a community or area of the state in which the

noncommercial, customary and traditional use of fish or game for personal or family consumption is a principal characteristic of the economy of the community or area." Prior to 1990, Alaska communities were classified as "rural" or "non-rural" by the Joint Board of Fisheries and Game. After 1990, "nonsubsistence areas" were identified by the joint board, applying factors and procedures identified in subsistence regulations (*Sec. 16.05.258(c)*):

> "The boards may not permit subsistence hunting or fishing in a nonsubsistence area. The boards, acting jointly, shall identify by regulation the boundaries of nonsubsistence areas. A nonsubsistence area is an area or community where dependence upon subsistence is not a principal characteristic of the economy, culture, and way of life of the area or community. In determining whether dependence upon subsistence is a principal characteristic of the economy, culture, and way of life of an area or community under this subsection, the boards shall jointly consider the relative importance of subsistence in the context of the totality of the following socio-economic characteristics of the area or community:
>
> (1) the social and economic structure;
>
> (2) the stability of the economy;
>
> (3) the extent and the kinds of employment for wages, including full-time, part-time, temporary, and seasonal employment;
>
> (4) the amount and distribution of cash income among those domiciled in the area or community;
>
> (5) the cost and availability of goods and services to those domiciled in the area or community;
>
> (6) the variety of fish and game species used by those domiciled in the area or community;
>
> (7) the seasonal cycle of economic activity;
>
> (8) the percentage of those domiciled in the area or community participating in hunting and fishing activities or using wild fish and game;
>
> (9) the harvest levels of fish and game by those domiciled in the area or community;
>
> (10) the cultural, social, and economic values associated with the taking and use of fish and game;
>
> (11) the geographic locations where those domiciled in the area or community hunt and fish;
>
> (12) the extent of sharing and exchange of fish and game by those domiciled in the area or community;

> (13) additional similar factors the boards establish by regulation to be relevant to their determinations under this subsection."

Applying these factors, five nonsubsistence areas have been identified by the Joint Board -- Ketchikan, Juneau, Anchorage-Kenai-Matsu, Fairbanks, and Valdez (cf., 5 AAC 99.015).

In 2000, about 20 percent of Alaska's population was "rural" by federal and state subsistence standards. This compares with 24.8 percent of the general U.S. population (1990) under federal census rural standards, discussed above. In most cases, the findings for Alaska populations by federal boards and state boards have been similar. There have been divergent findings in a few cases (such as Adak). Federal subsistence boards have found certain populations to be "rural" that state joint boards have classified as "non-rural" or inside "nonsubsistence areas," including portions of the Kenai Peninsula Borough (populations in the Ninilchik, Cooper Landing, and Hope areas) and portions of the Matanuska-Susitna Borough (populations in the Willow and Talkeetna areas).

Rural definitions have evolved with understandings of subsistence patterns in Alaska. During the settlement of Alaska Native land claims, literature produced for federal planning characterized subsistence fishing and hunting as being linked to distinct patterns of living in Alaska. As an example, *Alaska Natives and the Land* was intended to be a comprehensive overview of then-current conditions of Alaska Native groups, compiled by the Federal Field Committee for Development Planning in Alaska in 1968. This report asserted that there were stark contrasts in patterns of living in Alaska. It drew a sharp distinction between the so-called "high income, moderate standard of living" of urban dwellers who "lead lives very much like those of other Americans," and the "low income and standard of living" of Alaska Native groups (1968:3). However, while the report asserted a stark contrast between the "low" and "high" standards of living in Alaska, the report's materials portrayed a more complex set of regional patterns that challenged the simple generalization. In this report, fishing and hunting patterns were presented alongside information on a broad array of social topics, including health, housing, education, economy, land use, and political institutions. The federal agency perspective in this report may be termed "eclectic," in that it covered a broad set of factors. The eclectic framework implied that social, economic, cultural, health, and ecological factors were interconnected. Subsistence patterns were discussed as interwoven in a "way of life" for groups of people. Over subsequent decades, the "way of life" perspective has been commonly used by Alaska Native organizations to conceptualize subsistence issues, as illustrated by *Does One Way of Life Have to Die So Another Can Live? A Report on Subsistence and the Conservation of the Yupik Life-Style* (Yupiktak Bista 1974), and 17 years later, *The Calista Region: A Gentle People – A Harsh Life* (Calista Corporation 1991).

In 1980, the second year of the State of Alaska's newly established subsistence research program, a report by its director entitled *Subsistence as an Economic System in Alaska: Theoretical and Policy Implications* identified "community patterns" and "systems" as fruitful theoretical and policy paradigms for subsistence research (Lonner 1980). Such an approach was firmly rooted in mainstream ethnography. While similar to a "way of life"

paradigm, the approach established a focus on the role of subsistence activities in the local economic and sociocultural patterns of communities. Citing a large number of empirical and historical studies on subsistence uses and economies in Alaska communities, Lonner asserted that "there is not one, but many, subsistence economies in Alaska" and that "in order to protect both market and nonmarket economies of both urban and rural Alaska communities, it is necessary to identify and protect the resources and the systems upon which they rely" (Lonner 1980:24). That same year, Lonner advanced a set of factors that might be used to contrast types of economic and sociocultural systems for subsistence management. His factors included time depth ("long" to "short"), community base ("rural" to "urban"), social role ("kinship" to "individual/family"), economic role ("community and regional economic and nutritional self-sufficiency" to "personal use"), social and psychological products ("extended kinship, community, intergenerational, and cultural" to "primarily individual and immediate family"), among others. Lonner presented each factor as a continuum along which the patterns of communities and areas might be measured and assessed. Such an approach (identifying sets of factors thought to co-vary for measuring and assessing communities and systems) resembled later methodologies that were used within the state and federal subsistence programs for identifying rural areas and subsistence uses.

During the late 1970s through 1980s, a substantial number of ethnographies (primarily community studies) were conducted with federal and state funds to document patterns of living in Alaska. Examples included studies funded by the National Park Service (such as *Tracks in the Wildland, A Portrayal of Koyukon and Nunamiut Subsistence* by Nelson, Mautner, and Bane 1982), the U.S. Fish and Wildlife Service (such as *Kaktovik Subsistence, Land Use Values through Time in the Arctic National Wildlife Refuge*, by Jacobson and Wentworth 1982), the Minerals Management Service (such as *Barrow: A Decade of Modernization* by Worl and Smythe 1986), and the State of Alaska (such as *Land Use and the Economy of Lime Village* by Kari 1983). Most studies represented collaborations between communities, tribes, and government-funded researchers to document contemporary subsistence patterns in an area for the first time. The studies, which frequently provided rich ethnographic descriptions of local patterns, suggested that there were remarkable similarities in contemporary village fishing and hunting patterns across regions. At the same time, significant differences in factors such as wild food harvest levels, household incomes, and employment conditions were also revealed. Important policy questions were being informed by these emergent findings, including how to distinguish rural and non-rural areas for subsistence management.

As early as 1983, there was an effort to systematically compare community patterns across regions to examine the rural/non-rural issue. In *Resource Use and Socioeconomic Systems: Case Studies of Fishing and Hunting in Alaskan Communities*, Wolfe and Ellanna (1983) attempted to systematically compare ethnographic findings from a sample of case communities, including remote villages (Yukon-Kuskokwim Delta, Nondalton), mid-sized towns (Sitka and Nome), road-connected communities on the periphery of large urban areas (Homer, Kenai, Ninilchik, Dot Lake), and large urban areas (Fairbanks). The report's conclusions on rural and non-rural patterns were tentative because of the small set of cases compared. While fishing and hunting were valued

activities in all communities, there appeared to be substantial differences in the role of fishing and hunting in the economy, culture, and way of life of the case communities. Village patterns and the Fairbanks patterns appeared to be clearly distinguishable along a number of factors (wild food harvest levels; wage income levels; the mode of production; cultural value systems; the seasonal nature of activities; the degree of sharing of wild foods; and cultural systems of land use) (p. 248ff). Mid-sized case communities like Nome appeared distinct in several respects, so a "regional center" pattern was tentatively identified. Patterns in the road-connected areas were more difficult to categorize because of substantial between-household diversity and recent rapid changes in the areas.

Other comparative efforts about that time included *Distribution and Exchange of Subsistence Resources in Alaska,* representing a literature review of subsistence sharing and exchange systems by Langdon and Worl (1981); *Subsistence-Based Economies in Coastal Communities of Southwest Alaska*, a comparative examination of money and subsistence relationships in four communities by Wolfe et al (1984); *Contemporary Subsistence Economies of Alaska*, a compilation of papers examining subsistence as parts of local economic systems (Langdon 1986); *The Role of Fish and Wildlife in the Economies of Barrow, Bethel, Dillingham, Kotzebue, and Nome*, a comparison of regional hubs by Wolfe et al (1986), and *Subsistence in Alaska: Arctic, Interior, Southcentral, Southwest, and Western Regional Summaries,* a compilation of published information on regional patterns by Schroeder et al (1987).

One shortfall of the ethnographic approach in Alaska subsistence research has been a problem in comparability. It was often difficult to find convincing statistical support for observations about similarities and differences between groups of communities. Statistical tests of relationships among variables were difficult to perform, because the community studies did not always provide measurements of similar variables. To strengthen the ability to support qualitative findings with statistical tests, the State Division of Subsistence embarked on a research effort, using federal and state funding, to systematically collect information on similar variable sets across a broader sample of communities (Fall 1990). Over the next two decades, standardized surveys were developed and applied across a larger set of communities. Information from this survey research program eventually evolved into three major databases: the Community Profile Database (information on wild food harvest and use, product sharing, household demography, and household employment), the Map Catalog Database (maps of wild food harvest areas), and the Technical Paper Series (ethnographic descriptions of seasonal rounds, harvest methods, local histories, and other topics). Time series information was collected for a small set of communities, such as Pacific Gulf communities (with Minerals Management Service funding) to assess affects of the *Exxon Valdez* oil spill after 1989 (Fall and Field 1996).

In recent years, the use of statistical modeling to understand Alaska community patterns has been advanced with additional data sets as well. During the 1990s, measures of a set of social indicators were collected for a sample of communities with funding from the Minerals Management Service. In a series of reports, Jorgensen (1995a, 1996b, 1996) analyzed the social indicators data set to support the ethnographic observations that

distinct cultural differences exist between Alaska communities with respect to belief systems and value orientations, particularly in relation to a social group's orientation toward natural resource uses. At the same time, economic databases were developed and refined within the Institute of Social and Economic Research of the University of Alaska. The databases have been used for analyzing and predicting relationships among demographic, industrial, and fiscal variables for Alaska areas (cf., Goldsmith 1998, 2000; Goldsmith and Hill 1997; Gorsuch 1994; and Colt 1999).

While these databases comprise a growing body of systematically-gathered, quantified information, statistical analyses to examine research questions still encounter difficulties. A number of communities are as yet not represented in the Community Profile Database and Map Catalog Database, particularly the population centers of Juneau, Anchorage, Ketchikan, and Fairbanks, where subsistence household surveys have not been administered. The assessment of differences between village and city is complicated by the lack of comparable measures. For these places, other State of Alaska data sets can be used to represent patterns of wild food uses, including the Division of Wildlife Conservation harvest ticket/permit database, the Division of Sport Fisheries sport fish licensing and catch databases, and the Division of Subsistence Fisheries Harvest Database, all within the Alaska Department of Fish and Game. As described below, these databases were analyzed by this project to provide measures of country food production for the larger cities. Measures of economic activity and income at the level of business, industry, and place are available in the Alaska Economic Database at ISER and CDEC. However, these variables may be missing for many smaller villages, where only household-level measures are available. Therefore, to make statistical comparisons between villages and large cities, information from these multiple databases must be combined, a procedure that is not possible for all factors.

Certain factors are not well represented in existing databases. While substantial ethnographic materials exist describing belief systems, value orientations, and other ideological systems in villages and cities, there are few systematically-gathered, quantified measures representing these systems. Qualitative analyses comparing these aspects of country and city life are difficult to support statistically because of the lack of measures. Patterns of distribution, exchange, and consumption of wild food products within villages, towns, and cities are poorly represented in the databases. Recent analyses of distribution networks by Magdanz et al (2001) suggest this is a fruitful area for future research (cf., Wenzel et al. 2000). Traditional systems of knowledge, including ecological knowledge and customary law, are not well represented in databases (SP Research Associates and LaLonde 1991; Fehr and Hurst 1996). These subject areas generally have not been the focus of household surveys. Accordingly, the development of rigorous contrasts between county life and city life along these dimensions remains difficult.

Database limitations require careful methodological considerations. For community comparisons, community sets must be drawn so as to represent a complete range of places in terms of community types and ecological regions. A statistical comparison of a restricted set of places will likely produce a different picture of community patterns than

a comparison that includes a larger set. Statistically significant contrasts are more likely to be supported with larger community sets. How communities are defined also can influence statistical findings. This is a particular issue for large urban areas, dispersed road-connected populations, and culturally-heterogeneous communities. Using census tracts and postal areas, large cities such as Anchorage and road-connected areas like the Kenai Peninsula potentially can be divided into a number of smaller populations that may be treated as independent sampling units for some comparisons. Such a sampling approach allows for more precise statistical comparisons between areas than is possible if the data are only examined as larger, aggregated populations. Using tribal membership information, some areas potentially can be divided into socially self-identified communities that may be treated as sampling units for some statistical comparisons. For example, recent survey information from the Sitka Borough, a culturally-heterogeneous area, can be disaggregated into two communities – Sitka tribe and the Sitka non-tribe – to examine similarities and differences in patterns. For relatively small communities, such methodological approaches are not required for describing community patterns. But such sampling refinements are likely to be required for the rigorous treatment of geographic areas where multiple distinct communities have developed.